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THE

MINERAL COLLECTOR

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ARTHUR CHAMBERLAIN, Editor.

Member of the New York Mineralogical Club and of the Brooklyn Institute of Arts and Sciences.

VOL. II, NO. 10—DECEMBER, 1895.

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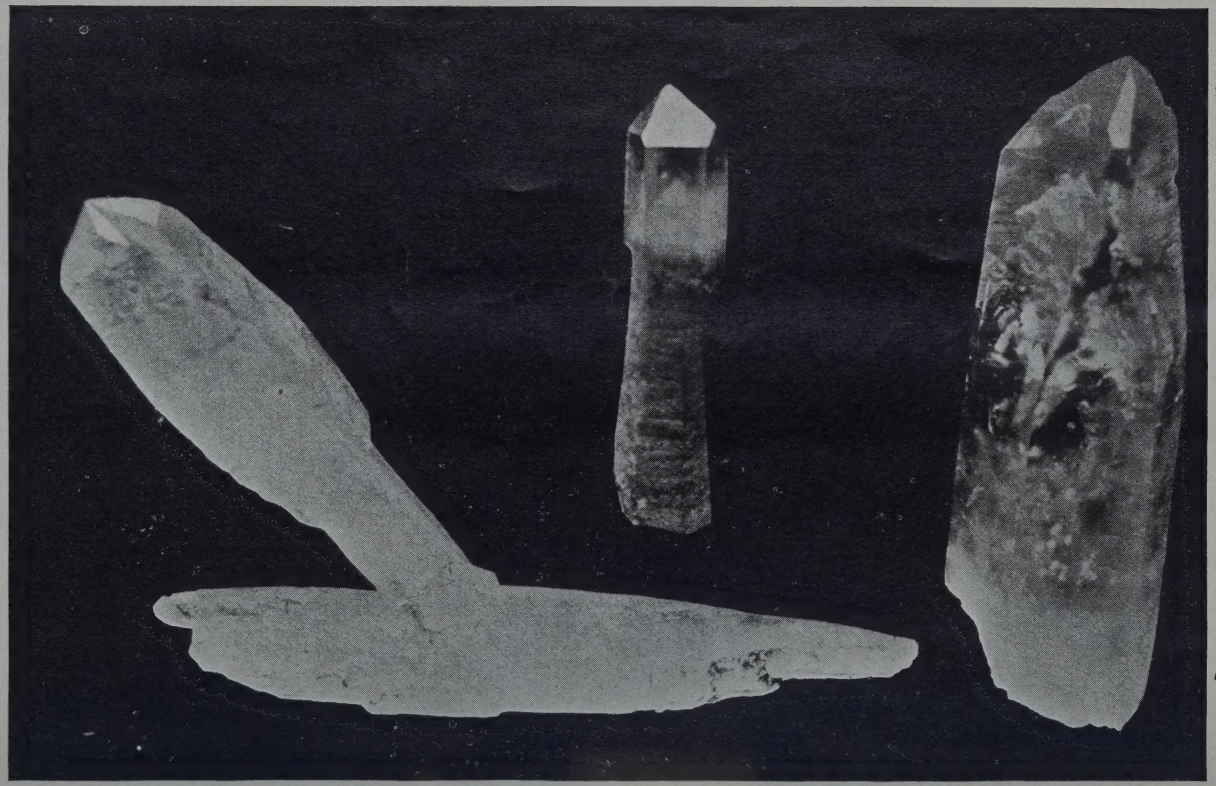

ODD GROUPING TRANSLUCENT QUARTZ. AMETHYST. LARGE LIQUID CAVITY.

QUARTZ CRYSTALS FROM GUANAJUATO, MEXICO.

Collection of A. C. Bates.

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THE

MINERAL COLLECTOR.

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VOL. II. DECEMBER, 1895. NO. 10.

For The Mineral Collector.

Quartz and its Varieties.

By Albert C. Bates.

PART VII.

MEXICAN quartz is famous the world over, and has an individuality of its own which is readily recognizable by those familiar with it, even though its variety of forms and colors exceeds that of any other North American locality.

Mr. William Niven, the well known mineralogist, has made repeated collecting trips through Mexico, and his knowledge respecting localities, the people and their institutions, is both extensive and interesting. Mr. Niven is a good observer, and the small affairs incident to life do not escape him. Consequently his stories of travel are replete with the detail of his observations, which enables one to see as he has seen.

A collector seeking large lots of minerals in Mexico must call at the homes of the men who labor in the mines, and take such specimens as have escaped injury at the hands of the children, who use them as pretty playthings. The homes are adobes, dug-outs, hovels or huts, infested generally with insects and filth.

Men who work all day more or less under ground, carrying upon their backs sacks containing 150 pounds of ore, and receiving in return 25c. (Mexican money), must necessarily live in squalor.

These laborers do not know mineral specimens by their proper names, as quartz, amethysts, apophyllite, etc., but by some term which includes all crystallized minerals: Thus, at Guanajuato the term is "Cheekeely," signifying sample; at Pachuca, "gallos," anglicized rooster. It seems funny to think of an amethyst being called a rooster.

Specimens may be bought by tourists at fancy prices of people who deal in minerals at the mining centers, but a collector, seeking material to ship and sell may buy very cheaply of the miners, if he will suffer the inconveniences and torments a sojourner among them must encounter.

With all their squalor, the Mexican Indian laborers are very polite people. Once interest them, and often your presence alone is enough for that, their politeness is extreme; but it is not sincere.

The mines of Pachuca and Guanajuato are essentially silver. The

ore of the former is in quartz veins, which afford great quantities of milky quartz crystals. Specimens are often found sprinkled with balls of bright pink rhodocrosite.

Milky quartz occurs at the Mina de Dolores, at Rey del Nonte, near Pachuca. Very ltttle amethystine quartz is found, but Mr. Niven saw one doubly-terminated crystal of deep color, nine inches long by one and a half inches in diameter, quite perfect, and worth, according to his estimation, one hundred dollars. Mr. Niven hopes soon to secure this crystal.

There are two noticeable features of the Pachuca quartz: That the crystals of a group vary much in length, and that they are brittle. They seem to have grown quickly, and with too little real substance, and sometimes specimens seem to me to have lost their moisture, thus rendering them brittle.

The mines of Guanajuato are many and have been extremely rich in minerals, yielding their stockholders handsome cash returns, and collectors a quantity of splendid specimens.

The Valenciano Mine, famous as the place of occurrence of the mineral valencianite, was of great extent, but is now filled with water and abandoned. A miner entering it in its later days, was obliged to walk an hour and a half to reach the spot at which he was to work. A tunnel cut the vein at right angles, and then followed it down a long series of levels. Water followed the windings in a trough of rock at one side of the passage, and found its way out of the mine through a tunnel made to carry it off.

All of the ore from this mine was carried in bags upon the backs of men up to the ore house at the mouth of the tunnel. The condition of the mine necessitated labor of this sort, and men willing to perform it for a miserable subsistence were at hand. But the song from start to finish was up, up, up! attuned to the surging of the hurrying water. I don't know whether or not to be glad that the water now prevents such awful labor. Fair specimens of quartz and amethysts were found at the farthest end of this mine.

The Mina de Luz—"Mine of Light"—afforded excellent specimens of quartz. The Mina de las Rayas is another of great extent, Mr. Niven after entering having walked continuously for an hour and a half to reach the quartz pockets, securing beautiful amethyst and milky quartz groups.

The chief features of the quartz of this district are in the delicacy of the tints and blending of quality and color, and in its associations with other minerals. Bands of amethystine tints in the matrix, and on up to the tips of the crystals of a group, are not unusual. Oval groups of short crystals with an amethystine blush appeal to all lovers of beauty. And then there are groups of the deepest royal purple, some with quite transparent tips, and others showing phantoms.

Groups of quartz, either milky or amethystine, with fine calcite crystals, small and large, sprinkled over them, are common. Transparent crystals with hollows in the faces of the pyramid, are frequently found.

Scepter crystals, some in curious combination with crystals of peculiar shape, are occasionally met with, a few specimens of which I have secured, and two are shown in the frontispiece.

Crystals inclosing floating bubbles are rare. The specimen shown is a good one, the bubble moving in a zig-zag cavity over two inches long.

There are other places in Mexico where quartz occurs, but they are not very well known and but few specimens have been offered for sale in this country.

The amethyst is a variety of quartz or rock-crystal, distinguished by its fine violet blue or purple color. This tint seems to be caused by a minute mixture of the peroxide either of iron or manganese, and is lost when the stone is exposed to the action of fire.

The amethyst is one of the precious stones mentioned in the Bible. Commentators generally are agreed that the amethyst is the stone indicated by the Hebrew word "achlamah," an opinion which is abundantly supported by the ancient versions.

The amethyst, according to Pliny, got its name, ἀμέθυστος, from its supposed power of preventing drunkenness.

Pennsylvania has no extensive deposits of crystallized quartz, but the mineral is widely distributed within her borders and in considerable variety. In bygone years many interesting specimens were found, a goodly number of which have a permanent place in the cabinets of local collectors.

As becomes collectors living in a State which has furnished them a great variety of beautiful minerals, they are conservative and select specimens with rare judgment and keen discrimination.

The amethysts found in Delaware County are superior to those afforded by any other American locality. One has but to see the magnificent specimen from Upper Providence in the collection of the American Museum of Natural History, or an illustration of it in natural colors in "Gems and Precious Stones of North America," to appreciate the truth of the assertion.

This specimen is a cluster of royal purple crystals, not of gem quality, and the largest crystal measures four and one half inches across the prism.

The finest gem crystals that I have seen were found near Chester, in a sandy soil intermixed with clay. The purple color is very unevenly distributed through the majority of the crystals found at this locality. Some are purple in the centre, others purple in one or both ends, the other parts being colorless. In the more transparent crystals a smoky phantom may occasionally be seen in the purple parts. I have from this locality a brilliant cut gem over an inch across, with a smoky phantom in its center. Unlike most amethysts, it is more beautiful by artificial light than by daylight. Several collectors whose opinions are of value, pronounce it the finest gem amethyst which has come under their notice from any locality.

In Birmingham crystals are found in groups, or on a quartzite matrix. In Middletown, Concord, Marple and other places both singly and doubly terminated crystals of good color have been found.

Fine specimens of amethyst from any of the Delaware County localities fetch high prices.

Prase is found at Blue Hill in doubly terminated crystals, seldom more than one inch long, and in rosettes and bunches of crystals up to three inches across. This is the finest distinctly green crystallized

quartz found at any American locality. Nodular aggregations of quartz coated with a micaceous substance are found at the same place.

Very good specimens of lamellar quartz, called cleavable quartz by local collectors, occur in loose boulders, milky and transparent in spots, at Overbrooke and Howard House, Delaware County. At Henderson Station, Montgomery County, transparent and milky groups of quartz crystals occur implanted on crusts of quartz. The crystals taper toward the pyramid, which generally exhibits one prominent rhombohedral plane.

At Hitners, curved and dislocated crystals are found. Drusy quartz and chalcedony of several shades of honey color, some quite brilliant, are found at the old Corundum Mines in Newlin.

Doubly terminated quartz crystals, opaque and quite rough and pitted, are found at the lead mines at Phœnixville.

A few very interesting pseudomorphs of quartz after twin crystals of feldspar were found in 1893 by Mr. Elmer Benge at the Old Copper Mines near Shannonville. The pseudomorphs were all of the same general character, but of different sizes, the largest crystals found being over five inches long and coated with drusy quartz, and standing in relief in a thick shell of quartz.

The largest specimen is now in my collection, and, though homely, is unique among pseudomorphs.

Asbestus altered to quartz, is found at Marple. At Newton, what is said to be serpentine altered to quartz is found in large masses, with cavities in it filled with minute quartz crystals of bright brown color.

Many other quartz pseudomorphs have been found, several having been described in the *American Journal of Science.*

One of the most attractive groups of quartz that I have seen from a Pennsylvania locality is in the American Museum of Natural History collection. The specimen is about 9x12 inches, with brilliant crystals an inch or more in length sticking out in all directions. Lying flat in cruciform position on one side of the group are two crystals, the longer of which measures nine inches. The contrast in position and color between the small and large crystals is very striking. The specimen is labelled from

PAXINOS, NORTHUMBERLAND COUNTY, PA.

The siliceous oolite found in Centre County, was described by Geo. R. Wieland in THE MINERALOGISTS MONTHLY, Vol. VI, No. 1, which is quoted in full:

"In the midst of the wide valley formed by the Appalachian Mountains as they stretch through Centre County, Pa., is an area of secondary highlands, itself divided into hills and valleys, known as the Chestnut Ridge. It extends about parallel to the northeasterly and southwesterly trend of the mountains, quite across Centre County, occupies an area some thirty miles long and two to three miles wide, is poorly watered, of a light sandy soil, and mostly covered by forests of pine, oak and chestnut. Though not wholly unfertile, and slowly being obliterated by farms, this region is in some of the older maps

marked as the "Barrens," and is still often locally so-called. The underlying rock is a sandstone, and scattered over the surface is much loose sandstone and flint. Here and there are beds of limonite and hematite, abandoned or still being worked. In fact it ranks as a rich iron region.

So much of detail in the description of this area, for the fact that amongst the rocky debris of its soil and surface is found irregularly shaped boulders and fragments, much weathered and iron stained, at first sight very rough looking, but really the most singular and beautiful of all the oolites, called siliceous oolite.

The name arises from the fact shown by the following analysis:

Single Spherule from Pennsylvania Siliceous Oolite.	
Silica	99.99
Iron	.01
	100.00
Single Spherule from Iowa River Oolite.	
Silica	2.54
Iron	trace
Calcium Carbonate	97.44
	99.98

While traces are met with (the oolite being very variable in appearance and quality) at various points in the Chestnut Ridge country, the most frequent occurrence is marked by a line running northeast from Scotia and terminating two miles north northwest of State College, where the blocks are quite numerous and reach a weight of as much as four hundred pounds, and where all the finer specimens are obtained. Many of the pieces from this point are free enough from iron and cleavage to admit of getting good cabinet specimens showing to perfection the wonderful regularity in the size of the spherules, the concentric lines, and, under the lens, when polished, the groups of interspherules. Occasionally the blocks contain cavities lined with quartz crystals. Sometimes a section shows a porous structure, the position of the spherules being occupied by spherical cavities lined with drusy quartz, presenting an appearance as of many minute quartz geodes broken open in matrix.

Whether this oolite is of organic origin or not is uncertain. Where it came from remains an unanswered question. Roughly speaking, the Chestnut Ridge region belongs to the Canadian period, but no connection between the siliceous oolite and the underlying rocks has yet been established. A strata of lime silica oolite in conjunction with silica lime oolite, of peculiar structure, crops out in a higher horizon (ordovician?) on the State College grounds, but no one has been able to say positively that this occurrence is even a neighbor to that of the siliceous oolite. Nor does any part of this region show a conclusive evidence of glacial action. Consequently the origin of this oolite remains, for the present, one of the unsolved geological paradoxes, and the collector must content himself with its beauty.

Later.—Since completing the above article, I have made a discovery which surprises and astonishes me. I have found between Rockwood

(a station on the Cincinnati Southern Railway, in Roane County, Tenn.) and the Tennessee River, siliceous oolite in place, both as a stratified rock and in masses embedded in a magnesian limestone. I first noticed rough looking pieces among loose surface flint in surroundings that strikingly remind one of the Pennsylvania occurrence. But further search revealed the beds.

Whether or not they have been noticed before I cannot say, but am under the impression that no regular survey of this section has ever been made. It is quite probable that further investigation will develop facts of interest as well as throw much light on the origin and character of siliceous oolite as found in Pennsylvania."

For a structural description of siliceous oolite, with further comparative analyses, see Barbour and Torrey in the Sept., '90 Number, of the *American Journal of Science.*

Mr. F. B. Jones of New York, sent a quantity of this oolite to Oberstein to be cut into cubes and balls, with very handsome results.

West Paterson, N. J.

As work progressed at this locality during the season of 1895, there was found a considerable quantity of quartz lining cavities in the trap rock. Milky quartz in crusts of drusy crystals, groups of stout crystals, and large masses of bright purple amethysts were found. Quartz pseudomorphs after natrolite (?) sprinkled thickly with small crystals of quartz occur in handsome specimens.

Other minerals associated with quartz occur in very showy specimens. Large transparent crystals of heulandite and apophyllite on masses of short milky quartz crystals occur plentifully in one part of the quarry. The large masses of pseudomorphous quartz found at Hoxie's Quarry a few years ago, were quite different from any so far found at this locality.

Amethyst crystals of a light purple or pink color are found at Clayton, Rabun County, Ga. The color is unevenly distributed, and transparent crystals are rare. Crystals with cavities containing liquid and movable bubbles, some quite large, have been found in fair quantities. The crystals are generally terminated at each end in several pyramids; the prism planes are uneven, the whole having the appearance of a multiple crystal. Crystals up to three inches long have been found.

Transparent quartz crystals from one-half to one and a half inches long, inclosing petroleum in one or more cavities, are found at Guntersville, Alabama. There is one pleasing feature about these crystals, —the liquid inclusions will not freeze should they be left in a cold room, as will most other liquid inclusions with which collectors are familiar.

At Newport, Kentucky, there are found doubly terminated quartz crystals of the average size of those found in Herkimer County, New York, but much inferior in quality. The majority of the crystals are wonderfully distorted; some are flattened and others are cavernous.

Mr. E. H. Harn has done a good deal of prospecting work in the neighborhood of Henry, Lincoln County, N. C., this year, and with satisfactory results. A great many interesting quartz crystals, some

pretty groups of crystals, and a quantity of massive quartz filled with rutile, have been gathered in.

None of the material, however, differs much from that already described in the first part of this article, excepting a lot of what has been termed "porcelain top" crystals, which are both attractive and unique. The crystals appear to be glazed or enamelled with a pinkish white substance resembling some porcelains, hence the name. The glazing is but a thin coating on the usual crystals found at this locality.

Messrs. Geo. L. English and Company have this year exhibited a great variety of the quartz from Lincoln County.

Itacolumyte or flexible sandstone occurs at several places in the Southern States, the most notable of which is Linville Mountain, Burke County, N. C. This mineral is made into specimens by sawing or cutting it into strips up to two feet long, by from one to six inches wide, the thickness depending on the splitting of the stone when quarried. I quote what follows from a newspaper clipping:

The peculiarity of the stone is that, while it looks just like an ordinary piece of sandstone, it is capable of being bent in the hand with considerable less force than is required to bend a piece of wet leather of equal thickness. When examined with a lens, by reflected light, the particles of which it is built up are seen to be movable individually by using a needle point. When a thin slice of the stone is looked at under a lens, by transmitted light, the fragments are seen to be locked together, like the parts of a section puzzle toy, fixed, but not loosely. Of course, there is no means of flipping out the various sections of the stone, as the interlocking is not only in one plane, but in every direction. The simplest way of explaining how this stone was formed is to say that the grains of sand were once cemented firmly together by another material, which has been partly dissolved, leaving countless natural ball-and-socket joints of jagged shape behind.

Mr. D. B. Corson of Concord, New Hampshire, recently sent me for examination several colorless slender quartz crystals, averaging two inches long, which were found at Strafford, Vermont. These crystals are very brilliant, some are doubly terminated, and all taper so that the alternate planes of the prism are nearly lost just before reaching the pyramid. The terminations are sharp, and a few show the "S" plane exquisitely.

One Western locality in particular I failed to mention while discussing that section. At Seven Rivers, New Mexico, small doubly terminated ferruginous quartz crystals are found. The smaller crystals averaging half an inch in length have a uniformly red-brown color, and are quite perfect. The larger crystals average one and a half inches in length, and are of a dirty brown color, but some are as bright and perfect as the smaller ones.

Now-a-days one seldom sees any of the amethysts from the mines around Thunder Bay, Lake Superior. Years ago they were plentiful, and old collections usually contain several fine specimens.

A collection made by an old sea-captain living at Nantucket, contains three bright specimens which are carefully preserved by his daughters. The locality was a favorite resort of the late Dr. A. E. Foote, who collected and sold many remarkable specimens of the amethysts.

A recent letter from a mining engineer living at Rat Portage, Ontario, stated that he had for sale eight specimens averaging 6x6 inches, price $60.00 for the lot. He also stated that specimens were very scarce, because of work having ceased years ago at the best localities.

The crystals are generally stout and short, dark amethystine in color, ferruginously flecked just under the surface of the pyramidal faces, and nearly always very bright in their general appearance.

Asteriated quartz occurs as a constituent of a granitic vein in pieces not larger than a small egg in the neighborhood of the Gatineau, Canada. The stone is perfectly transparent, and by reflected light exhibits a star of six rays. A few rare specimens show this effect in ordinary light. Ottawa lapidaries charge from four to ten dollars per specimen, according to quality.

There is a large deposit of massive quartz, milky white, transparent and some slightly ferruginous, two miles west of Westminster Park, Wells Island, St. Lawrence River. This quartz is suitable for commercial purposes, and is close to navigation, but no mining has yet been done at the locality.

Other near-by islands of the Thousand Island group have large veins of milky quartz in granite.

Quartz of good quality that is free from impurities is valuable, and parties having extensive deposits should notify their State Geologist of the fact, and request the address of people seeking such material.

The End.

For The Mineral Collector.

The W. W. Jefferis Collection.

By Chas. H. Pennypacker.

PART X.

THE ways and works of mineralogists are amusing. They have their moods and their tenses. They have gusts of glory and periods of gloom. They want a certain family group and reject all else, and by fits and jerks and spasmodic effort hustle a collection together, and are severely conscious of vast scientific attainment and achievement. And when the executors or administrators call in the children of light to say what the market value of these monstrosities may be, great is the astonishment and disappointment. It is not the quantity of specimens or the size of specimens which are the forceful factors in the latter day valuation and sale when the estate has to be settled. Some time since, I had occasion to look at a lot of prehnites. Five or six specimens would survive the competitive results of all time, the rest would not. In a few weeks this residum of material was distributed to the four quarters of the globe, only to burden, never to strengthen some cabinets. Where mines have been abandoned, the specimen products of such mines, if rare and distinctive, and easily

preserved from the inroads of moisture, are worthy of acquisition. I recall the harmotones of Scotland (of which Wm.G.Rothe of Brooklyn, has the best specimen in the United States), the rose apophylites of St. Andreasberg, of which Clarence S. Bement of Philadelphia has the best specimen, the zeolites of Poonah, India and Guanajuato, Mexico, of which W. W. Jefferis of West Chester has the best specimens, the brucites of Wood's Mine, the best examples of which are to be found in the Jefferis collection, and the chalcopyrites of French Creek, which are in the cabinet of W. G. Rothe. Such minerals as millerite (from the Gap Mine), and iron pyrites and realgar and stibnite will absorb moisture and require to be kept in a very dry atmosphere, lest the day of disintegration come. Of late I have been looking over the hundred or more specimens of serpentine in the Jefferis collection. This paradox of geological and mineralogical study has great interest for me. The gems of the world are found in its embrace. It has as many varieties of color as an agate (doctored or undoctored), and as many variations of hardness and degrees of density as any substance. It becomes harder upon exposure to the atmosphere, and upon exposure to clay or ordinary alluvial soil absorbs moisture and becomes softer. It is found in all parts of the globe. As I pen these lines, I look at the largest lump of *arthite* ever found in the serpentine drift of East Bradford, Chester County, Pa., and as cerium dydymium and lanthanum have been found in the coating of this arthite I have no doubt but that *helium* will also be found there. When Mr. Jefferis first gathered specimens of this mineral near Sconneltown School House it was called compact "*Schorl*," and it was a chemical analysis made at New Haven which determined the quality of the compact blackness, and discovered the rare company of rare metals (metals found nowhere else on the American continent) which surrounded it. Along this serpentine "drift" in Chester County have been found the fine amethysts and fine feldspar crystals and some of the beryls of the Jefferis collection. Hence I say that serpentine is a substance to be considered, and every collection ought to be complete in its many colors and degrees of hardness. The serpentine found at Cornwall, England, is cut into vases, candle sticks, table tops and panels for house decoration. It is a rich dark brown and red in color, and takes a high polish. The first trip Mr. Jefferis ever made to the Herkimer quartz district was made about the year 1852. At that time there had not been much blasting, and the demand was moderate, and there was no "Silica craze" known. He secured about a peck of the crystals, and five or six of the best yet remain in his case. And in spite of the blasting and the blowing of the past forty years they remain unsurpassed. They are large, are perfect, are doubly terminated, have some extra planes, contain coal and water, and are good in every particular. They are not mitred and twisted and bevelled and basal-planed and tapered and flattened and hemstitched and cut bias like the examples from North Carolina, but when it comes to the kingdom of quartz, they are still "inside the breastworks." The mineral known as "clinochlore" is an offspring from serpentine. The specimens from the Tilly Foster Mine do not compare in interest with those found at the Brinton Quarry in Birmingham, Chester County. Here is a drawer full of specimens. It has consumed forty years to select these

choice survivals, and you can see the large and perfect crystal figured in Dana, and a group of small crystals implanted on serpentine, which group was in the cabinet of the late Wilmer Worthington. There are about five hundred large specimens in the Jefferis collection, which specimens will average 12 inches by 12 inches in size. In a public museum they would be of excellent use and give a strength and solidity to this coruscation of crystals, energy, labor and determination. When Clarence S. Bement began the formation of his exceptionally fine collection, William S. Vaux said to him: "Whenever you can secure a fine large perfect crystal, secure it, notwithstanding its size. You don't know what may be the fate of your labors, and should it ever become subject to the inspection of a lot of school trustees for the purposes of a purchase, these large and showy things which they can measure in bushel baskets will have a tremendous effect. You don't want to get too many small specimens."

Up there on the top of that case is the largest Dufton Fall barite crystal. It is twelve inches long, three inches in diameter, and perfectly terminated, and in the old house on North High Street operated as a parlor door anchor in windy weather. Bryce M. Wright sent it over in exchange more than forty years ago. Next to it are two six inch cubes of fluorite purchased from me within a year. Their owner looks up at them (when he visits "the annex") and exclaims "Well! I don't see as good anywhere; they suit me exactly!" Near by are three or four large calcites, and then come more fluorites and a Canadian pyroxene, and a beryl from Virginia, and another from New Hampshire. In the centre of the room, on the top of the double case, you can see wavellites from East Whiteland, Chester County, Pa., amethysts from Nova Scotia, Lake Superior and North Carolina, celestines and aragonites from Sicily, galena crystals from Illinois, calcite from the old Wheatley Mine near Phœnixville, smithsonite from Laurium, albite from Virginia, zinc blende from England and many other large and showy things. In the several discussions and remarks anent this fine cabinet, I have touched many themes and I hope have made some suggestions which may have been of advantage. If I have succeeded in convincing the mineralogist, that to reap the rich rewards and gain the greatest pleasures of sciences, he should be possessed of the broadest culture and most extensive and varied education, should consign suspicion to the domain of ignorance, prejudice and bigotry, and should treat all men as endowed with the same wish for fairness as he has, should disassociate the cranks in diet, in physics, in morals, in religion, in sumptuery crusades, from the earnest, consistent and intelligent devotees of nature and her beautiful gifts to man, then my cursory and disjointed thoughts will not have been uttered in vain. Come and see this great collection! Alfred Sharpless will show it to you, and you will not wonder why the more than three score and ten years have scarcely touched the frame or enfeebled the energy and intellect of its vigorous, courteous and scientific owner. Here is to be found the Elixir of Life—the "el-dorado" of the poet's dream. Nature has repaid the kindly attentions at her shrine by conferring upon the worshipper her great boon of health and longevity. If the brain is strengthened by the contemplation of the problems of intercrystallization, of quartz, of corundum, of serpentine, of metallic

deposits of the causes, uses and composition and changes of the zeolite family, then life and all the activities of life are prolonged. Let us deal in and deal with thoughts and ideas! Extract "sermons from stones"—which surely suggest infinitude of plan, co-existent with the stars.

The End.

A Word to Subscribers.

THE second volume of the MINERAL COLLECTOR is nearing completion: it ends with the February number. It has received better support than the first volume, but not nearly enough to enable it to pay expenses.

It is most economically conducted. Mr. Chamberlain's knowledge of book-making and his relations with the printers, enable him to produce a magazine at lowest possible cost. He has given his own time cheerfully to the details of its publication, at much personal inconvenience and considerable pecuniary loss, all for the liking he has for Mineralogy.

A little further on will be given some of the details bearing on the subject; but I wish now to emphasize the fact that the Magazine should live, and the burden of expense be divided among those able and willing to bear it.

Mr. G. B. Frazar of West Medford, Mass., has voluntarily written that should there be any doubt of a third volume, he will subscribe $5.00 for a single subscription. I subscribe $5.00 for my subscription. Those who can afford an advance over the regular subscription of $1.00, will kindly write at once to Mr. Chamberlain, naming their offer. In the event of sufficient support to meet expenses, Mr. Chamberlain assures me that he will continue publication and better the Magazine in every detail possible. Let the support be generous and timely.

The advertising patronage extended the Magazine by dealers in minerals, has been liberal in that all of the leading concerns have taken space steadily. The rates have been very low, and the service rendered excellent.

An analysis of the mailing list shows that a large percentage of the subscribers are active collectors; a few people take the Magazine seemingly because they are interested in minerals and because they have a few specimens, but are not buyers.

Further, sample copies have been sent regularly to people who have bought specimens advertised in each issue, but who do not become subscribers. One collector has bought over $25.00 of material advertised, but he does not subscribe, nor will he say a word as to why he does not.

The Magazine fills, in a measure, a need felt by active collectors, and that this is true is evidenced by letters *saying so* from a goodly number of well known people.

May THE MINERAL COLLECTOR live long and prosper.

ALBERT C. BATES.

WITH regard to the above communication from Mr. Bates, I would

say that if $150.00 were contributed by friendly subscribers, that amount, together with the amounts received by renewal of regular subscribers, would enable me to clear expenses on Volume III, and if realized, another volume will be published.

Full value will be given in subscriptions or advertising space, for all money contributed: thus, a person contributing $5.00 will be entitled to five subscriptions, which he may donate to institutions or friends, or he may use $4.00 worth of advertising space during the year.

Announcement will be made in the next number of the amount pledged, and it will be stated in the February number whether THE MINERAL COLLECTOR will be continued or not.

ARTHUR CHAMBERLAIN.

A Submerged Forest.

TREES ONE HUNDRED FEET TALL STANDING UPRIGHT IN LAKE SAMAMISH.

MANY years ago, even so far back that the traditions of the oldest Siwash extend not thereto, there was some vast upheaval of mother earth on the shores of Lake Samamish that sent a portion of the Newcastle hills sliding down into the lake, with its tall evergreen forest intact, and there it is to this day. About this time of the year the waters of the lake are at their lowest, and then the tops of the tallest of these big submerged trees are out of the water, but never more than ten or twelve inches.

Unfortunately for the curiosity seeker and travelling public generally the submerged forest is on the opposite side of the lake from the railroad and the station of Monohon, and very few people ever see the phenomenon unless they take the time and pains necessary to reach it.

Sam Coombs, the pioneer, is very enthusiastic concerning its beauties and mystery. He talks Chinook fluently, but with all his quizzing of the red-skinned inhabitants he has never learned anything that will throw any light on the history of the forest under water. The waters of the lake are very deep, and the bluffs back of the beach very precipitous, so that the only explanation of the freak is that either by an earthquake or some other means a great slide has been started in early times, and it went down as a mass until it found lodgment at the bottom of the lake. At this time one can see down into the glassy, mirror-like depths of the lake for thirty feet or more. Near the banks the forest trees are interlaced at various angles and in confusion, but further out in the deep water they stand straight, erect, and limbless and barkless, 100 feet tall. They are not petrified in the sense of being turned to stone, but they are preserved and appear to have stood there for ages. They are three feet through, some of them, and so firm in texture as to be scarcely affected by a knife blade. The great slide extended for some distance, and it would now be a dangerous piece of work for a steamer to attempt passage over the tops of those tall trees. Even now the water along shore is very deep, and a

ten-foot pole would sink perpendicularly out of sight ten feet from the shore line.

All over this country are found strata of blue clay, which in the winter season are very treacherous, and given the least bit of opportunity will slide away, carrying everything above with them. This is the theory of the submerged forest of Lake Samamish. It probably was growing above one of these blue earth strata, and heavy rains, or probably an earthquake, set it moving. The quantity of earth carried down was so great that the positions of the trees on the portion carried away were little affected. It is hardly to be believed that the earth suddenly sank down at this point and became a portion of the beautiful lake.

Few such places exist. There is a place in the famous Tumwater Cañon, near Leavenworth, which is in some respects similar. At some early time a portion of the great mountain side came rushing down and buried itself at the bottom of the cañon. Now there is a considerable lake, and in the centre stand tall, limbless trees, different in species from those growing along the cañon.

At Green Lake, near Georgetown, Col.—a lake which is 10,000 feet above sea level—is a submerged forest of pine trees, some hundred feet tall, but not so numerous as in Lake Samamish. This same theory explains their presence as given above.—*From the Seattle Times.*

Mines Under the Sea.

VISITORS MAY HEAR THE BOOMING OF THE OCEAN OVER THEIR HEADS.

THERE is a striking example of man's boldness in searching for wealth and his skill in securing it at Betallock, near Cape Cornwall. Betallock is a bold headland composed of huge masses of hornblend, masked by walls of slate, against which the Atlantic surges are constantly dashing. The persevering efforts of man have at this point been more powerful than those of nature. The *Alaska Mining Record* says that the gloomy precipices of slate, which unnumbered ages of sea storms have been unable to displace, are here cut in twain by the miner, whose complicated machinery clings to the cliff at places where it would seem almost impossible for an engine to be fixed. Powerful steam engines, stamp mills, and all the heavy machinery required in modern mining are perched on what at first sight seem inaccessible situations, so that from a distance they look as if growing out of the crags. All is noise and bustle, which contrasts strangely with the placidity of the seaward view.

"Kibbles" descend fathoms beneath the sea, and ascend again with copper or tin ores which are wheeled away to larger heaps, where women, boys, and girls separate various qualities with the systematic industry of workers in a factory. Everybody and everything—rocks, platforms and paths—are smeared with the prevailing red hue derived from a slight mixture of iron with copper or tin ores, and then the very muddy stream flowing from the stamp mill to the sea has imparted to the beach, the breakers, and the foam the same rubicund tinge. If ore is coming up plentifully and of good quality, everybody

is pleased, and far down in the gloomy depths of the mine, which Cornish legends people with spirits, the news that a new "bunch" of copper has been struck, or that the old lode is growing richer, fills the workers with professional joy.

As the visitor creeps along the passages into which the light of day has never entered, he hears comparatively little, until, having become accustomed to the darkness, barely illuminated by the flicker of lamps, he dimly distinguishes the stalwart gnomes at work. Coming from the upper world amid the din of heavy stamps and measured gush of pumps, the clang of machinery above and the surge of the sea below, the rattle of wagons on tramways, and the crowds of men and boys climbing up and down paths which seemed to be too steep for a goat, the modified silence of the level strikes some as unnatural.

In places, however, the guide may ask the visitor to listen to a curious sound. It is the booming of the waves above and the grating of the stones on the sea bottom. Then he is told, to give him courage, that in some of the recesses of the first sea level the ore has been cut away until a roof not more than six feet thick has been left. First worked on the face of the cliffs only, the mine descended, level by level, until the excavations extended for more than six fathoms under the sea and for long distances inland, while the greatest depth to which it had been sunk is about 2,000 feet.

Louisiana's Great Sulphur Mine Opened.

THE QUICKSAND OVERCOME.

NEW ORLEANS, Nov. 1, 1895.—The Standard Oil Company has finally solved the great problem on which hundreds of thousands of dollars have been spent in vain of getting at the immense mass of sulphur which lies some hundreds of feet below the surface in Calcasieu parish, Louisiana. For thirty-five years company after company has experimented with this deposit of sulphur, which is probably the largest in the country, and is valued at from $30,000,000 to $100,000,000. There was no doubt about the sulphur being there, but unfortunately between it and the surface lay an immense quicksand, which could not be removed, excavated, or bored through. There was no way of man reaching the sulphur and getting it up. A small town, Sulphur City, has grown up in the neighborhood of the mines, at which lived the operatives engaged in trying to solve their problem. As the expenses of these employees had to be paid, and as not a pound of sulphur was obtained, the several companies organized to mine it went, one after another, into bankruptcy, until the property fell, a short time ago, into the hands of the great Standard Oil Company.

Long before the discovery of petroleum in Pennsylvania a party of hunters stumbled on a petroleum spring in Calcasieu. The Louisiana Petroleum Company was organized to mine for it, and while mining discovered that side by side with the oil was one of the most valuable deposits of nearly pure sulphur in the world. The sulphur was 400 feet below the surface and extended below 800 feet further. There was no doubt or question about this, but, unfortunately, just above

the sulphur was a quicksand 160 feet thick. One effort after the other to reach the sulphur failed. The drill struck an underground well, then a gas well. After several deaths the American Sulphur Company gave up the enterprise. Then a Belgian engineer undertook the work and endeavored to neutralize the quicksand by freezing it solid and boring it through, and erected valuable refrigerating machinery for that purpose, but the quicksand would not stay frozen and that system of mining had to be abandoned.

Within the last few weeks the Standard Oil Company has got control of the property. It set about mining in a fashion the very opposite of that of the Belgian engineer. Instead of using freezing as the means of getting at the sulphur, it is trying heat. Superheated water is forced through ten-inch pipe on the sulphur, melting it, and the liquid sulphur water is then pumped up. A little exposure to the air, so as to evaporate the water, leaves almost pure sulphur. The experiment has been a success beyond expectations.

Brooklyn's Great Museum.

Ground was broken Saturday, September 14th, for the erection of the new Brooklyn Museum of Arts and Sciences on Prospect Hill, east of the reservoir and facing the Eastern Parkway. The Brooklyn Institute of Arts and Sciences, which has striven long for such a museum was well represented at the ceremonies. The Rev. George D. Holtz made the opening prayer, and the ground was broken by Park Commissioner Squier. The Rev. Dr. R. S. Storrs of the Church of the Pilgrims, acting President of the institute, spoke at length on the history of the institute and the effort to realize the plan of the museum. The eleven acres which have been given by the city to the institute for $1 a year for 100 years have been levelled and the work of erecting the building will be begun at once, $300,000 of the $700,000 being already available. The museum will be three stories high and about 550 feet square. It will contain four large interior courts. A lawn will slope from all sides of the building to a distance of seventy feet, and there will be an unobstructed view of the museum from all directions. The section of the building facing Eastern Parkway and Washington avenue will be completed first. It will be 210 feet long and 60 feet deep. The most striking feature of the building will be the memorial hall, which will rise from the first floor of the arch to the central dome.

Singularly enough, iridium, though a metal of such comparative rarity, is said to be a source of no small trouble in the operations of our mints, on account of the difficulty experienced there in separating it from gold bullion. Practically, as is well known, this metal is utilized to some extent for making instruments of delicacy which require to possess the property of not corroding, and is obtained from iridosmine, a natural alloy of iridium, osmium, rhodium, platinum, and ruthenium, an extraordinary white mixture of rare metals, much of it being found in washing for gold in the beach sands of Oregon, and it resists the action of all single acids. In its use for tipping gold pens, in which it is specially serviceable, the grains of it, which are flat, like gold dust, are picked out with magnifying glasses.

Editorial Notes.

As it has been hinted that certain dealers in minerals have proprietary interest in this Magazine, I wish to emphatically state that I, singly and alone, am the proprietor. As THE MINERAL COLLECTOR is the only publication devoted exclusively to mineralogy, it is natural that dealers in minerals should use it extensively as a medium by which to reach buying collectors. Further, I am justified in the conclusion, arrived at by ample evidence, that the Magazine is useful alike to collectors and dealers, and that its usefulness is limited only by the number of people engaged in collecting minerals.

SUGGESTIONS from several people who take a friendly interest in this Magazine have been made to me regarding premiums and other methods to secure subscribers. I have a full appreciation of such means, and consider them useful under certain conditions, but as a help to this publication, I think them of doubtful advantage. I prefer to tell a simple story of the conditions surrounding the publication of this Magazine, and abide the result. As the politicians say "The magazine is in the hands of its friends, and the polls are open. Vote! and a 'green ballot' may be voted early and often."

BY an "active collector" is meant one who gives a large portion of his spare time and means to the improvement of his collection. There are but few collectors of ripe experience, and all will agree that notions as to qualities, sizes and values of specimens, are constantly changing. The boy or man who makes a steadfast collector begins with what he can get, taking everything that comes his way, and improves his collection as his judgment and means permit. The opposite—the seldom satisfied collector—begins with a notion of standards of desirableness from which he will not depart, and consequently his stock of material is in a languishing condition. Temperaments differ, and advice is a well-nigh useless article in the matter of fads. "What is worth doing at all is worth doing well" is not considered.

SUBSCRIBERS wishing back Numbers of this Magazine should send for them without delay as some of the Numbers are getting scarce. We still have a few sets of Vol. I, at one dollar.

WE have received from Mr. A. L. Stevens a set of the staurolite pseudomorphs he advertizes in this number, and they are very interesting and will make a good addition to any collection.

LAST month one of our advertisers offered 10 lbs. (75 varieties) of minerals for $1.00. This month another advertiser offers a mineral specimen free, he even paying the postage on it. Certainly the subscriber cannot complain about the high price of minerals.

THE
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A MONTHLY MAGAZINE.

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ARTHUR CHAMBERLAIN,
237 N. Seventh St., Newark, N. J.

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WILL exchange new cloth-bound books, also cut gem stones, for fine minerals, fossils, or gem stones. Correspondence solicited. Miss A. F. Rice, Wollaston, Mass.

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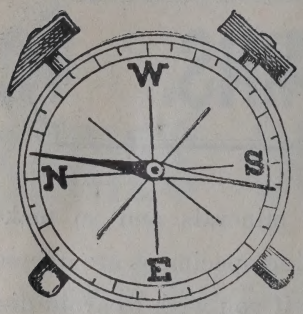
Chrysocolla, 15c.
Kyanite, bright blue, 15c.
Chalcedonized Coral Geodes, 15c.
Sphalerite, Joplin, Mo., 10c.
Australian Opals, rough, 10c.
Mexican Opals, rough, 10c.
Mexican Opals, polished, 25c.
Blue Spinels, crystals, 10c.
Hiddenite crystals, 10c.
Smoky Quartz, cut and polished, 10c.
Green Tourmalines, cut, 25c.
Brown Tourmaline Crystals, 5c.
Green Tourmaline Crystals, 10c.
Black Tourmaline Crystals, 5c.
Diopside Crystals, 10c.
Chlorite Garnets, 10c.
Green Tourmaline, with pink centre, 30c.
Garnet Pebbles, Arizona, 7 for 10c.
Golden Beryl Crystals, 5c.
Zircon Crystals, 5c.
Ruby Spinel Crystals, 2 for 5c.
Wulfenite Crystals, 2 for 5c.
Hyalite, Mexico, 10c.
Hyalite, California, 10c.
Rutile Crystals, 2 for 5c.
Twin Calcites, Egremont, 20c.
Rutile in Quartz, 15c.
Labradorite, bright colors, 15c.
Azurite, polished, 10c.
Sunstone, Norway, fine, 40c.
Mosaics, flowers and birds, 5c.
Flos Ferri, Styria, 25c.
Quartz, sprinkled with Pyrite, 15c.
Herkimer Quartz, 100 for 10c.
Herkimer Quartz, larger, 100 for 25c.
Westphalia Quartz, 5c.
Adamite, 75c.
Native Copper, crystallized, $3.00.
Chalcedony Geodes, 15c.
Quartz (Eisenkiesel), 25c.
Descloisite, Lake Valley, N. M., 50c.
Native Copper, Arborescent, 15c.
Jasperized Wood, polished, 50c.
Travertine, polished, 25c
Garnets in Mica, Schist, Conn., 25c.
Atacamite, 50c.
Jasper, polished, Canada, 25c.
Caswellite, 10c.
Jade, 50c.
Prehnite, 25c.
Rose Garnets, 10c.
Pyrites (Sulphur Balls), 25c.
Favorite Gem Holders, for holding cut gems, small crystals or rough specimens, 10c.

ARTHUR CHAMBERLAIN,
237 N. Seventh St., Newark, N. J.

MINERALS.



We offer you this month among our new arrivals, the following:—

POWELLITE. A few specimens only, of this very rare calcium molybdate were found in the Lake Superior Region. We now have all that are for sale—less than one dozen specimens. $1.00 to $3.50

RUTILATED QUARTZ. Another lot of this interesting combination from Madagascar. 1.00 to 15.00

CHALCOPYRITE. A few only of these exquisitely crystallized specimens from French Creek. 4.00 to 10.00

SIDERONATRITE, Chile. In fine fibrous masses. 1.00 to 6.00

CHALCOCITE, Cornwall, Eng. Have just unpacked a large series of the best crystallized specimens of this mineral that we have ever obtained. 1.00 to 8.00

SPHALERITE, CALCITE, GALENA, DOLOMITE, MARCASITE, from Missouri. A small shipment only from this locality, containing many good things. 1.00 to 10.00

CYANITE, Conn. From a new locality, green instead of blue in color. Good specimens. .25 to 2.00

DIASPORE, Chester, Mass. A new lot, crystallized and massive. 1.00 to 5.00

GREEN OPAL and **RED JASPER,** Douglas County, Washington. .50 to 2.00

LANDSCAPE MARBLE, England. Polished sections. .50 to 3.00

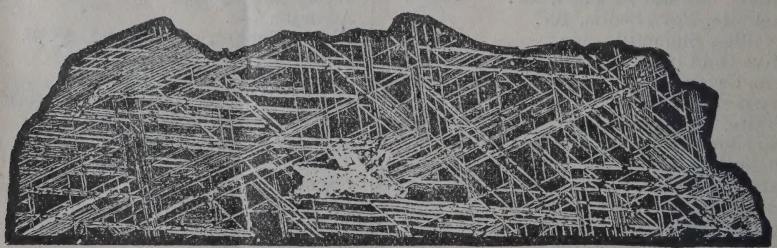
SATIN SPAR, Siberia. Carved and polished objects of a light yellow color. .50 to 2.50

AGALMATOLITE CARVINGS, China. .50 to 2.00

POLISHED AGATES, Uruguay. All sizes, all colors. .25 to 5.00

SULPHURS, CELESTITES, SELENITES, galore, from Sicily. 1.00 to 10.00

METEORITES.



HAMILTON COUNTY METEORITE.

We make a specialty of **METEORITES.** If you wish to purchase, or if you have meteorites to sell or cut, write us.

Send for our special Catalogue of Meteorites, 80 pages, 24 illustrations, 25 cents.

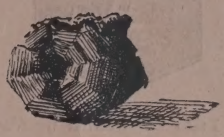
Catalogue of Minerals, 168 pages, 25 Cents.

☞ Circulars sent on application, giving prices of the other 19 catalogues issued by us.

MINERALS SENT ON APPROVAL.

Ward's Natural Science Establishment,

18—28 COLLEGE AVENUE, ROCHESTER, N. Y.



SYSTEMATIC COLLECTIONS.

My facilities for securing educational materials, enable me to take the lead in furnishing systematic collections for teaching MINERALOGY, GEOLOGY and ZOOLOGY in Schools and Colleges. Individual Specimens also furnished, among which we would call attention to the following: *Sulphur*, Girgenti, Sicily, single crystals and groups, from $1 to $5. *Stibnite*, Hollister, California, crystals in groups, 50c. to $10. *Crystallized Silver* associated with copper, Lake Superior region, $7 to $10. *Opal*, Washington, various shades, yellow, brown and green, 25c. to $3. *Opals*, cut, from Australia, Mexico, Hungary and Washington, 50c. to $25. *Beryl*, Yancey Co., N. C., 25c. to $2. *Iolite*, Haddam, Conn., crystallized as well as massive, of deep color, 50c. to $3. *Zunyite*, Colorado, 50c. to $1.50. *Topaz*, Utah, 20c. to $1. *Tourmaline*, brown and black, N. Y., 25c. to $5. *Titanite*, Canada and N. Y., 25c. to $5. *Anglesite*, Sardinia, $1 to $3.50. *Landscape Marble*, England, 50c. to $3.50. *Zoisite*, Mass., 25c. to $2. Catalogue sent on receipt of 6 cts. in postage stamps.

RELIEF MAPS.

New model of the United States, with adjacent ocean bottoms, *modeled on correct curvature*. Circular describing 35 Relief Maps free.

METEORITES.

A good price paid for meteorites of all kinds. New and undescribed ones especially desired. An extra price paid for the entire "find" or "fall." Meteorites also cut, polished and etched.

WASHINGTON SCHOOL COLLECTIONS.

Minerals, Rocks, Invertebrate Animals.

Unquestionably the best collections for the money ($2.00 to $3.50 each) ever offer in this country. Descriptive Catalologue and Text Book of 64 pages (price 20 cts.) accompanies each collection. Send for circular.

BUILDING STONES.

20 Specimens, in neat case, of the various Granites, Marbles, Limestones, and Sandstones used in the Public Buildings of the National Capital. Sent to any address, prepaid, on receipt of 85 cents. 5 collections to one address $3.50.

EDWIN E. HOWELL,

612 Seventeenth St., N. W., Washington, D. C.

In answering Advertisements please mention THE MINERAL COLLECTOR.

MINERALS FOR THE HOLIDAYS.

A FEW SUGGESTIONS AS TO HOLIDAY GIFTS.

1st. A beautiful *Rutilated Quartz Watch Charm.* We have two styles, (a) Hearts at $1.50 or $2.00; (b) Triangles at $1.50, $2.00, $2.50 and $3.50. These are the prices *unmounted*; good plated mountings, 15c. to 25c.; 14 carat solid gold mountings, $1.00 to $2.50 extra.

2nd. A splendid polished specimen of *Rutilated Quartz* of the new Madagascar find, $3.50, $5.00, $7.50, $10.00, $12.50 or $35.00; or why not club together and buy our big $125 museum specimen, with needles of Rutile a foot long.

3rd. A paper weight in the shape of a polished section of *Arizona Jasperized Wood* from the magnificent lot we have just purchased, which includes only such sections as are completely surrounded by bark. We have them at 35c., 75c., $1.00, $1.50, $2.00, $2.50, $3.00, $3.50, $4.00, $5.00, $7.50, $10.00. Postage will be about 10 per cent. extra.

4th. One of our splendid groups of *Arkansas Quartz.* You can secure one at any price you want up to $25.00; Cabinet sizes run from 25c. to $2.00, and you cannot fail to be pleased with any we send you, no matter what its price is. If you prefer a fine single crystal, it will cost you from 25c. to $1.00, though choice little crystals can be had as low as 10c.

5th. "Minerals and How to Study Them," Prof. E. S. Dana's new book, $1.20; postage, 10c. extra.

MORE ARKANSAS QUARTZ. Most brilliant and limpid Crystals! Three shipments recently arrived, as the result of Mr. English's visit to Arkansas. Groups, large and small; single crystals so beautiful that "they make your mouth water;" crystals with a marvellous series of phantoms; choice chloritic enclosures; twisted crystals; distorted crystals, crystals with rare planes and rarer etchings; flat crystals; elongated crystals; crystals so attractive that you simply cannot resist their charms! All the best collectors are buying them. The low prices are a surprise even to *our* customers.

COLORADO GOLDS. The exquisite little crystallized wire and leaf Golds announced last month have been immensely popular, but as every one of them was good, we can still furnish excellent little specimens at 25c. to $2.50.

VARISCITE FROM UTAH, in gorgeous polished slabs, being sections of nodules of pure Variscite, rich green inside, surrounded by yellow agate-like bandings. One of the liveliest minerals now in the market. A few extra fine specimens, $4.00, $5.00, $6.00 and $10.00 We will have cheaper specimens as soon as we can have our rough material worked up.

RARE OLD PENNSYLVANIA MINERALS. An old-time collection was recently picked, yielding us considerable exceptionally good material. A fine series of *Rare Forms of Pyrite Crystals* from Lancaster Co., 5c. to 25c.; excellent *Malachite* from the Jones Mine, 50c. to $1.00; stalactitic "*Steamboat*" *Wavellites*, 10c. to 50c.; good *Cæruleolactite*, 10c. to 50c.; extra fine *Zaratite*, $1.00 to $2.00; *Chesterlite* crystals and groups. 10c. to $1.00; large crystals of *Clinochlore*, 25c. to $1.50; beautiful polished *Williamsite*, 50c. to $1.00; also *Iridescent Limonite*, crystallized *Diaspore*, gem *Pyrope Garnets*, two fine French Creek *Chalcopyrites*, etc., etc.

CHLORITIC PSEUDOMORPHS AFTER STAUROLITE from N. H., (new), 5c. to 25c.

WURTZITE CRYSTALLIZED from Missouri, 50c. to 2.50.

LORANDITE, *the new Macedonian Thallium* (!) *Mineral*, in large, sharp, brilliant crystals associated with fine crystallized Realgar, $2.00 to $25.00.

Many Other Recent Additions are mentioned in our BULLETIN just issued.

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124 pp. Illustrated Catalogue (see full notice elsewhere), 25c. in paper; 50c. in cloth.
44 pp. Illustrated Price-Lists, 4c. Circulars and Bulletins Free.

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